



**MISSION
STARTS HERE**

**CUSTOM ELECTRONIC SYSTEMS
FOR AVIONICS & DEFENCE**

WHY PARTNER WITH PRIMA ELECTRO

FROM REQUIREMENTS TO MISSION-CRITICAL ELECTRONICS

Every Avionics & Defence programme starts with a unique engineering challenge. Prima Electro turns customer requirements into custom electronic systems, combining multidisciplinary engineering and advanced power electronics with in-house industrialisation and manufacturing capabilities.



CUSTOMER-DRIVEN ENGINEERING

EVERY SOLUTION STARTS WITH YOUR REQUIREMENTS

We work in close collaboration with our customers to define the most effective system architecture, turning technical requirements into fully customised electronic solutions tailored to the specific application.

Co-engineering | System Architecture | Custom HW/SW | Application-specific design



ADVANCED POWER ELECTRONICS

HIGH-PERFORMANCE POWER CONVERSION FOR DEMANDING APPLICATIONS

Our expertise spans AC/DC, DC/DC and inverter technologies, leveraging wide-bandgap semiconductors and simulation-driven design to maximise efficiency, power density and system performance.

SiC & GaN Architectures | High-Voltage Conversion | Motor Drives & Inverters | Electro-Thermal Simulation



INTEGRATED HARDWARE & CONTROL

HARDWARE AND SOFTWARE ENGINEERED AS ONE SYSTEM

Our multidisciplinary teams develop embedded hardware, firmware and real-time control algorithms that work together to manage complex architectures, communications and power flows.

Embedded Firmware | Real-Time Control | Energy Management | Communication Protocols



RELIABILITY BY DESIGN

RELIABILITY IS ENGINEERED FROM DAY ONE

EMC, thermal management and environmental robustness are built into every phase of development – from simulation to qualification testing.

EMC & EMI control | Thermal & Vibration Testing | Environmental Robustness | Compliance & Validation



FROM CONCEPT TO LIFECYCLE SUPPORT

TECHNOLOGY PARTNERSHIP BEYOND DEVELOPMENT AND PRODUCTION

From feasibility and prototyping to industrialisation and production, we ensure controlled manufacturing, full traceability and long-term support, including obsolescence management and dedicated repair services, supporting products for up to 20 years.

Feasibility & Prototyping | Industrialisation & Manufacturing | Lifecycle & Obsolescence | Long-Term Support

CUSTOM ELECTRONIC SYSTEMS FOR AVIONICS & DEFENCE



ENGINEERING CHALLENGES. CUSTOM SOLUTIONS

TWO PROJECTS. ONE APPROACH

Avionics & Defence applications cannot be built around standard products. They require the right system architecture, the right technologies and the right development path. The value of a technology partner lies in balancing performance, reliability, manufacturability and application-specific requirements from the earliest design stages, transforming complex specifications into optimized, industrial-ready solutions.

CASE STUDY 01

ELECTROMECHANICAL ACTUATORS

SiC POWER CONVERTER

ENGINEERING CHALLENGE

Develop a compact, high-efficiency motor drive for electromechanical actuators, combining high power density with stringent requirements for EMC, thermal management, environmental robustness and long-term reliability.

ENGINEERING SOLUTION

Prima Electro developed a fully customised SiC-based power conversion system, engineered around the customer's performance and integration requirements. The solution combines power electronics, motor control, thermal optimisation and EMC-by-design into a compact architecture ready for validation, industrialisation and series production.

TECHNICAL HIGHLIGHTS

60-150 kW POWER RANGE
UP TO ± 270 VDC INPUT
>10 kHz SWITCHING FREQUENCY
-55 / +85 °C OPERATING TEMPERATURE

*SiC architecture | Liquid-cooled design
EMC & dV/dt filtering | High-altitude
& vibration-resistant design*

CASE STUDY 02

HIGH-VOLTAGE POWER MANAGEMENT

MODULAR DC/DC CONVERTER PLATFORM

ENGINEERING CHALLENGE

Develop a scalable high-voltage power conversion system capable of managing multiple isolated converters from a 2 kV input while ensuring stable operation, voltage balancing and coordinated power management within a mission-critical electrical architecture.

ENGINEERING SOLUTION

Prima Electro developed a fully customised modular DC/DC conversion system based on an LLC resonant topology, combining high-voltage power electronics with embedded control intelligence. A dedicated master control architecture coordinates four isolated converters, managing voltage balancing, power sharing and protection functions to ensure reliable and efficient system operation.

TECHNICAL HIGHLIGHTS

2 kV DC INPUT
4x ISOLATED CONVERTERS
LLC DC/DC TOPOLOGY
MASTER-CONTROLLED VOLTAGE BALANCING
AND POWER SHARING

*Parallel converter operation | Embedded control algorithms
Power limitation & protection | Electrical safety
& EMC-oriented design*

EVERY MISSION BEGINS WITH A REQUIREMENT. THAT'S WHERE WE CREATE VALUE.



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